

REMARKS

This responds to the Advisory Action mailed April 29, 2003 and the Office Action mailed on January 15, 2004.

Claims 1, 9, 16, and 23 are amended; as a result, claims 1-51 are now pending in this application.

§103 Rejection of the Claims

Claims 1-23, 25-29, 31-34, 37-38, 40, 43, and 45 were rejected under 35 USC § 103(a) as being unpatentable over John et al. (Journal of Lightwave Tech.).

Independent claims 1, 9, 16, and 23 recite, among others, first voids, imaginary bonds connected the first voids, and second voids formed along the imaginary bonds. Independent claims 1, 9, 16, and 23 are amended to further clarify that the first voids are distinct from each other and that the second voids are distinct from each other and from the first voids.

Applicant is unable to find, among other things in John et al., either a showing or suggestion “the first voids are distinct from each other” and “the second voids are distinct from each other and from the first voids”. Thus, claims 1, 9, 16, and 23 are not obvious over John et al. Accordingly, Applicant requests that the rejection of claims 1, 9, 16, and 23 be reconsidered and withdrawn and that claims 1, 9, 16, and 23 and their dependent claims be allowed.

Regarding independent claim 43; this claim recites:

forming a periodic array of unit cells in a substrate, wherein each unit cell consists of a plurality of first voids joined by imaginary bonds, and wherein the periodic array forms an incomplete bandgap; and

forming one or more second voids along respective one or more of the imaginary bonds in each unit cell so as to modify the periodic array to create the complete photonic bandgap.

Applicant is unable to find in John et al. first voids in which the first voids are joined by “imaginary bonds” and in which the first voids “form an incomplete bandgap”. Applicant is also unable to find “forming one or more second voids along respective one or more of the imaginary bonds in each unit cell so as to modify the periodic array to create the complete photonic bandgap”. Moreover, Applicant is unable to find, among other things, in John et al. a suggestion to form with a complete photonic bandgap that includes forming second voids along imaginary

bonds. Therefore, claim 43 is not obvious over John et al. Accordingly, Applicant requests that the rejection of claim 43 be reconsidered and withdrawn and that claim 43 and its dependent claims be allowed.

Regarding independent claim 29, Applicant is unable to find in John et al. “imaginary bonds connecting the first voids” and “the period of array has an incomplete bandgap”. Applicant is also unable to find “forming a plurality of second voids in the substrate along at least one of the imaginary bonds in each unit cell so as to form a complete bandgap”. Thus, claim 29 is not obvious over John et al. Accordingly, Applicant requests that the rejection of claim 29 be reconsidered and withdrawn and that claim 29 and its dependent claims be allowed.

Regarding independent claim 38, Applicant is unable to find in John et al. “first periodic array of first voids from unit cells connected by imaginary bonds” and “first periodic array has an incomplete bandgap for the select wavelength”. Applicant is also unable to find “forming a second periodic array of second voids, wherein the second voids are arranged at least one each along each of the imaginary bonds so as to form the complete bandgap at the select wavelength”. Therefore, claim 38 is not obvious over John et al. Accordingly, Applicant requests that the rejection of claim 38 be reconsidered and withdrawn and that claim 38 and its dependent claims be allowed.

Claims 24, 30, 35, 36, 39, and 44 were rejected under 35 USC § 103(a) as being unpatentable over John et al.

Applicant respectfully traverses the rejection. Claims 24, 30, 35, 36, 39, and 44 are dependent claims. In view of the reasons represented above regarding the independent claims, these dependent claims are also not obvious over John et al. for reasons at least similar to the reasons presented above regarding the independent claims plus the elements recited in the dependent claims.

Further, claims 24, 30, 39, and 44 recite that the first and second voids are formed by “surface transformation”. Notwithstanding that claims 24, 30, 39, and 44 are not obvious over John et al. in view of the reasons represented above regarding the independent claims, claims 24, 30, 39, and 44 are further not obvious over John et al. because forming the first and second voids by the “surface transformation” is not found in John et al.

Accordingly, Applicant requests that the rejection of claims 24, 30, 35, 36, 39, and 44 be reconsidered and withdrawn and that claims 24, 30, 35, 36, 39, and 44 be allowed.

Response to the Advisory Action

The Advisory Action indicates that there is no antecedent basis in the specification for the voids being distinct from one another.

Applicant respectfully disagrees. Applicant submits that the claims are supported by the specification.

For example, the description of FIG. 3A through FIG. 5C describes that the voids are connected by “imaginary” bonds. Thus, the voids are distinct from each other. In addition, the drawings also show that the voids are distinct from each other. For example, FIG. 3B and FIG. 3C show that voids 320 are distinct from each other. As another example, FIG. 5B and FIG. 5C show that voids 520 are distinct from each other; voids 540 are distinct from each other; and voids 520 are distinct from voids 540.

The explanation presented above shows that the claims contain matter described in the original specification. Therefore, no new matter is introduced in any amendment and response.

CONCLUSION

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's representative (612) 373-6969 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

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6-15-04

By



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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Mail Stop RCE, Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 15th day of June, 2004.

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Signature

